

What is claimed is:

1 (1) An alternating pressure valve system for an alternating pressure mattress comprising:

2 (a) a blower with an air intake and an air outlet;

3 (b) a rotor valve assembly connected to the air outlet from the blower with the rotor
4 valve assembly comprising:

5 (1) a housing with an air intake, a first air outlet, a second air outlet, and a
6 circular chamber for receiving the air from the air intake; and

7 (2) a wedged shaped rotor valve rotatably contained within the circular chamber
8 of the housing such that the rotor valve can rotate to block the first air outlet, block the second
9 air outlet, or block neither air outlets; and

10 (c) means for controlling the rotation of the rotor valve.

1 2. The alternating pressure valve system of Claim 1 wherein the controlling means
2 comprises using a plurality of pressure sensors for sensing the relative air pressure at
3 each air outlet.

1 3. The alternating pressure valve system of Claim 1 wherein the controlling means
2 comprises using a microprocessor.

1 (4) The alternating pressure valve system of Claim 1 wherein the controlling means
2 comprises a gearmotor to rotate the rotor valve.

1 (5) The alternating pressure valve system of Claim 4 wherein the gearmotor is controlled
2 by printed circuit boards.

1 (6) The alternating pressure valve system of Claim 1 wherein the rotor valve blocks the
2 first air outlet for about 0 seconds to about 5 minutes before moving to block the
3 second air outlet.

1 7. The alternating pressure valve system of Claim 6 wherein the rotor valve blocks the
2 first air outlet for about 3 minutes before moving to block the second air outlet.

1 8. The alternating pressure valve system of Claim 1 wherein the rotor valve is shaped such
2 that the rotor valve completely blocks air flow to either the first or the second air outlet
3 when the rotor valve is positioned in front of the first or the second air outlet.

1 9. The alternating pressure valve system of Claim 1 wherein the rotor valve is shaped such
2 that the top of the rotor valve completely blocks air flow to either the first or the
3 second air outlet when the rotor valve is positioned in front of the first or the second air
4 outlet and the shaft of the rotor valve is recessed from the circular chamber to allow for
5 some air to flow around the rotor valve into the air outlet that is being partially blocked
6 off by the rotor valve shaft.

1 10. The alternating pressure valve system of Claim 1 wherein the blower is a variable
2 speed blower to allow for the adjustment of the pressure inside an attached alternating
3 pressure air mattress with faster speeds giving higher pressures and slower speeds
4 giving lower pressures.

1 11. An alternating pressure valve system for an alternating pressure mattress comprising:
2 a variable speed blower with an air intake and an air outlet;
3 a rotor valve assembly connected to the air outlet from the blower where the rotor
4 valve assembly comprises: a housing with an air intake, a first air outlet, a second air outlet,
5 and a circular chamber for receiving the air from the air intake; a wedged shaped rotor valve
6 rotatably contained within the circular chamber of the housing such that the rotor valve can
7 rotate to block the first air outlet, block the second air outlet, or block neither air outlets; a
8 gearmotor connected to the rotor valve to rotate the valve from blocking the first air outlet to
9 blocking the second air outlet; pressure sensors to sense the pressure at or near the first and

10 second air outlets;
11 means for controlling the gearmotor and rotor valve to allow for different periods of
12 time between allowing air to flow through the first air outlet and the second air outlet; and
13 means for controlling the speed of the variable speed motor to thereby control the
14 pressure within an attached alternating pressure air mattress.

1 12 The alternating pressure system of Claim 11 wherein the pressure sensors determine the
2 position of the rotor valve.

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1 13. The alternating pressure valve system of Claim 11 wherein the rotor valve blocks the
2 first air outlet for about 0 seconds to about 5 minutes before moving to block the
3 second air outlet.

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1 14. The alternating pressure valve system of Claim 13 wherein the rotor valve blocks the
2 first air outlet for about 3 minutes before moving to block the second air outlet.

1 15. The alternating pressure valve system of Claim 11 wherein the rotor valve is shaped
2 such that the rotor valve completely blocks air flow to either the first or the second air
3 outlet when the rotor valve is positioned in front of the first or the second air outlet.

1 16. The alternating pressure valve system of Claim 11 wherein the rotor valve is shaped
2 such that the top of the rotor valve completely blocks air flow to either the first or the
3 second air outlet when the rotor valve is positioned in front of the first or the second air
4 outlet and the shaft of the rotor valve is recessed from the circular chamber to allow for
5 some air to flow around the rotor valve into the air outlet that is being partially blocked
6 off by the rotor valve shaft.

1 17. The alternating pressure valve system of Claim 11 wherein the means for controlling
2 the gearmotor comprises printed circuit boards.

1¹⁹ 18. The alternating pressure valve system of Claim 11 wherein the means for controlling
2 the gearmotor comprises a microprocessor.

1 19. An alternating pressure valve system and mattress comprising:
2 a variable speed blower with an air intake and an air outlet;
3 a rotor valve assembly connected to the air outlet from the blower where the rotor
4 valve assembly comprises: a housing with an air intake, a first air outlet, a second air outlet,
5 and a circular chamber; a wedged shaped rotor valve rotatably contained with the circular
6 chamber of the housing such that the rotor valve can rotate to block the first air outlet, block
7 the second air outlet, or block neither air outlets; a gearmotor connected to the rotor valve to
8 rotate the valve from blocking the first air outlet to blocking the second air outlet;
9 means for controlling the gearmotor and rotor valve to allow for different periods of
10 time between allowing air to flow through the first air outlet and the second air outlet;
11 ^{new}_{ow} pressure sensors for detecting the pressure at or near the air outlets connected to the
12 (gearmotor controlling means;
13 means for controlling the speed of the variable speed motor to thereby control the
14 pressure within an attached alternating pressure air mattress;
15 a display to indicate the relative pressure within the alternating pressure air mattress;
16 a low air loss alternating pressure air mattress connected to the first and the second air
17 outlets such that some air to escape from the air mattress when there is air pressure within the
18 air mattress and that alternating chambers or sacks are filled with air in the air mattress
19 depending on the location of the wedged shaped rotor valve.

1 20. A method of providing alternating pressure to a patient comprising the steps of:
2 placing a patient on a low air loss mattress with a first set of air sacks and a second set
3 of air sacks;
4 connecting the first set of air sacks to a first air outlet and connecting the second set of
5 air sacks to a second air outlet;

6 connecting a blower to the first and second air outlets;
7 providing air flow to the first and second air outlets wherein the air flow can be
8 controllably adjusted to partially occlude the air flow to the first air outlet such that most of the
9 air flow is to the second air outlet but air flow is not completely prevented from the first air
10 outlet; and
11 alternating the air flow such that most of the air flow is to the first air outlet but air
12 flow is not completely prevented from the second air outlet.

1 21. The method of claim 20 further comprising the step of monitoring the pressure in the first
2 air outlet and the second air outlet.

1 22. The method of claim 21 further comprising the step of adjusting the air pressure within the
2 air mattress to serve the needs of the patient.

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